

C1  
capacitor lower electrode being constituted by a plurality of crystal grains, the crystal grains containing a metallic element;

a capacitor insulating film formed on surfaces of the bottom portion and an inner wall of the capacitor lower electrode;

an insulating film formed to surround the capacitor lower electrode; and

a capacitor upper electrode formed above an inner wall of the cylindrical-type wall and the bottom portion of the capacitor lower electrode via the capacitor insulating film,

wherein a grain boundary between crystal grains constituting the inner wall of the cylindrical wall of the capacitor lower electrode is substantially perpendicular to an interface between the inner wall and the capacitor insulating film, and a grain boundary between crystal grains constituting the bottom portion of the capacitor lower electrode is substantially perpendicular to the interface between the inner wall and the capacitor insulating film.

C2  
15. (Amended) A semiconductor device according to claim 10, wherein a portion of the capacitor insulating film is formed on a top surface of the cylindrical-type wall of the capacitor lower electrode, and is thicker than that portion of the capacitor insulating film which is formed on a side of the cylindrical-type wall of the lower electrode.

C3  
17. (Amended) A semiconductor device according to claim 10, wherein the lower electrode is formed of one selected from the group consisting of SrRuO<sub>3</sub>, Ru, RuO<sub>2</sub>, Re, Os, Pd, Rh, Au, Ir, and IrO<sub>2</sub>.

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C3

18. (Twice Amended) A semiconductor device according to claim 10, wherein the capacitor insulating film is formed of one selected from the group consisting of  $\text{SrTiO}_3$ ,  $(\text{Ba}, \text{Sr})\text{TiO}_3$ ,  $\text{Ta}_2\text{O}_5$ , and  $\text{Pb}(\text{Zr}, \text{Ti})\text{O}_3$ .

C4

--25. (New) A semiconductor device comprising:

a semiconductor substrate;

a conductive plug formed on the semiconductor substrate;

a capacitor lower electrode including a bottom portion formed on the conductive plug and a cylindrical-type wall contacting the bottom portion to surround the bottom portion, the capacitor lower electrode being constituted by a plurality of crystal grains, the crystal grains containing a metallic element;

a capacitor insulating film formed on surfaces of an inner wall, an outer wall, and the bottom portion of the capacitor lower electrode; and

a capacitor upper electrode formed above the inner wall, the outer wall, and the bottom portion of the capacitor lower electrode via the capacitor insulating film,

wherein a grain boundary between crystal grains constituting an inner wall of the cylindrical wall of the capacitor lower electrode is substantially perpendicular to an interface between the inner wall of the cylindrical wall and the capacitor insulating film, a grain boundary between crystal grains constituting an outer wall of the cylindrical wall of the capacitor lower electrode is substantially perpendicular to an interface between the outer wall of the cylindrical wall and the capacitor insulating film, and a grain boundary between crystal grains constituting the bottom portion of the capacitor lower electrode is substantially perpendicular to an interface between the bottom portion and the capacitor insulating film.

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26. (New) A semiconductor device according to claim 25, wherein a lower end portion of the outer wall of the capacitor lower electrode is covered by an insulating film.

27. (New) A semiconductor device according to claim 25, wherein a portion of the capacitor insulating film is formed on a top surface of the cylindrical-type wall of the capacitor lower electrode, and is thicker than that portion of the capacitor insulating film which is formed on a side of the cylindrical-type wall of the capacitor lower electrode.

28. (New) A semiconductor device according to claim 25, wherein the lower electrode is formed of one selected from the group consisting of  $\text{SrRuO}_3$ , Ru,  $\text{RuO}_2$ , Re, Os, Pd, Rh, Au, Ir, and  $\text{IrO}_2$ .

29. (New) A semiconductor device according to claim 25, wherein the capacitor insulating film is formed of one selected from the group consisting of  $\text{SrTiO}_3$ ,  $(\text{Ba}, \text{Sr})\text{TiO}_3$ ,  $\text{Ta}_2\text{O}_5$ , and  $\text{Pb}(\text{Zr}, \text{Ti})\text{O}_3$ .

30. (New) A semiconductor device according to claim 25, wherein the lower electrode is used as a memory cell of a stack-type DRAM.--

#### REMARKS

In this Preliminary Amendment, Applicants cancel claims 11 – 14 and 16 without prejudice or disclaimer of the subject matter therein, amend claims 10 and 15 in order to more appropriately define the present invention, add new claims 25 – 30 to protect additional aspects of the present invention. Applicants have also amended nonelected claims 17 and 18 to directly

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